Inter-Project Agreement (IPA) Between The Stratospheric Aerosol and Gas Experiment III (SAGE III) Project and the Earth Science Data and Information System (ESDIS) Project for Science Data Processing, Archive, and Distribution

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and the Earth Science Data and Information System (ESDIS) Project for
Science Data Processing, Archive, and Distribution

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1. Introduction

1.1 Background

The Stratospheric Aerosol and Gas Experiment III is an approved extension of the Stratospheric Aerosol Measurement II (SAM II), SAGE I, and SAGE II experiments to improve the aerosol characterization, improve and add to gaseous retrievals and extend the vertical range of measurements and sampling coverage of the heritage instruments. SAGE III is built and its data are processed by the SAGE III Project of the Aerosol Research Branch Atmospheric Sciences Division at NASA Langley Research Center. The first SAGE III will fly on the Russian Space Agency Meteor-3M spacecraft.

The Earth Science Data and Information System (ESDIS) Project is responsible for the development, management and operation of the Earth Observing System Data and Information System (EOSDIS). EOSDIS will archive and distribute data products from instruments on-board Earth observing satellites, such as SAGE III on Meteor-3M.

1.2 Scope

In accordance with Mission to Planet Earth Level 1 requirements, the ESDIS Project has joint responsibility with flight projects for documenting agreements for providing the archiving and distribution of data products from those flight projects serviced by the EOSDIS.

This Inter-Project Agreement (IPA) between ESDIS and the SAGE III Project defines the responsibilities that support the transfer of the SAGE III data products to EOSDIS and the archiving and distribution of SAGE III data products to the SAGE III Science Team, the general Earth science community and other data users. This IPA describes the allocation of these responsibilities between the ESDIS and the SAGE III Projects.

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2. Purpose

The purpose of this document is to define the responsibilities, activities and processes of the SAGE III Project and the ESDIS Project for the processing, transfer, archive and distribution of SAGE III data. Specifically, this document will:

2.1.1 Define the activities to be performed for the transfer of the SAGE III data products to the EOSDIS.

2.1.2 Define the activities to be performed for the archiving and distribution of SAGE III data products within EOSDIS.

2.1.3 Define the responsibilities of the SAGE III and ESDIS Projects for SAGE III data processing and archiving and distribution of SAGE III data products.

2.1.4 Define the process for establishing and updating the implementation schedule.

2.1.5 Define the funding responsibilities for each element.

2.1.6 Define responsibilities for status reporting, coordination activities, and managing change during both implementation and operations phases.

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3. Overview

The SAGE III Project and the ESDIS Project will jointly satisfy the NASA ground system requirements for the SAGE III science experiment. The SAGE III Project will perform instrument operations and data processing. The ESDIS Project will archive and distribute data products.

The ESDIS Project, using the EOSDIS Core System (ECS) at the NASA Langley Research Center Distributed Active Archive Center (DAAC), will distribute science products to the SAGE III Science Team, the general Earth science community and other data users and will archive all processed data and relevant material, as agreed. The Langley DAAC will additionally install and test, with the SAGE III Project, communication and other necessary archive and distribution capabilities, document any agreed Langley DAAC value added processing, and assist data users with information related to archive and distribution functions. The Langley DAAC will also populate appropriate directories and inventory entries with descriptive information and metadata provided by the SAGE III Project as agreed and will report distribution statistics.

The SAGE III Project will produce SAGE III EOS Standard Products using computing resources of their Science Computing Facility (SCF) and data acquired from the Langley DAAC. The SAGE III Project will make these products along with associated metadata, ancillary data, and documentation available to the Langley DAAC using the SAGE III SCF.

The projects jointly, with ESDIS as the lead, will maintain the "Interface Control Document between the EOSDIS Core System (ECS) and the Stratospheric Aerosol and Gas Experiment III (SAGE III)" (ECS/SAGE III ICD) to document the interface between the systems developed to fulfill the operational responsibilities of this agreement.

The SAGE III and ESDIS Projects will agree on scheduling milestones and coordinate reporting to Mission to Planet Earth (MTPE) management. Each Project is responsible for arranging funding from MTPE Code 170 for its respective activities to achieve operational capability by Meteor-3M launch (August 1998).

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4. System Responsibilities

4.1 ESDIS Project

4.1.1   Assign the Langley DAAC responsibility for ingest, archive and distribution of SAGE III Project data products. Such responsibilities include ingest of data products, metadata, ancillary data, correlative data and other information using ECS ingest capabilities; archive; and distribution of these data to the SAGE III Science Team and other users. The Langley DAAC, using ECS, is assigned responsibility for serving as ESDIS Project implementer in carrying out the details of the ESDIS Project responsibilities.

4.1.2   Lead the testing of the interface between the SAGE III SCF and the ECS.

4.1.3   Lead the testing of the interface between the SAGE III Mission Operations Center (MOC) and the ECS.

4.1.4   The ESDIS Project will fund and provide software licenses and support for the SDP Toolkit including not to exceed one software license for each commercial off the shelf (COTS) component.

4.1.5   The ESDIS project will provide support to the SAGE III SCF as an SCF described in the Goddard Space Flight Center, Interface Control Document Between EOSDIS Core System and Science Computing Facilities, Document number 505-41-33 (ECS/SCF ICD).

4.2 Langley DAAC (As ESDIS Designee)

4.2.1   Establish and operate the communications link between the SAGE III SCF and the ECS in coordination with the SAGE III Project.

4.2.2   Support the SAGE III Project in defining metadata contents to be used by EOSDIS for describing and advertising SAGE III data products.

4.2.3   Support the ESDIS Project and the SAGE III Project for testing of the interface between the SAGE III SCF and the ECS.

4.2.4   Support the ESDIS Project and the SAGE III Project for testing of the interface between the SAGE III MOC and the ECS.

4.2.5   Receive SAGE III Level 0 data, definitive orbit data, Level 0 ancillary data and their respective metadata from the SAGE III MOC in accordance with the ECS/SAGE III ICD and archive and backup in the ECS.

4.2.6   Distribute to the SAGE III Project, data from the EOSDIS archive, including any data contained in the EOSDIS archive needed for SAGE III processing (for example, data received from the SAGE III MOC), using either standard ECS services (including search, order and subscription) or any extensions to ECS developed by the Langley DAAC.

4.2.7   Receive delivered algorithm packages, including SAGE III data processing source code, documentation of data processing methodology, test data, and description of data products from the SAGE III SCF in accordance with the ECS/SAGE III ICD and archive in the ECS.

4.2.8   Receive SAGE III data products and associated metadata from the SAGE III SCF for archive in the ECS in accordance with the ECS/SAGE III ICD and archive in the ECS.

4.2.9   Receive ancillary input data and associated metadata used in production of SAGE III products that have a source other than the EOSDIS, from the SAGE III SCF in accordance with the ECS/SAGE III ICD and archive in the ECS.

4.2.10   Receive product version histories associated with production of SAGE III products from the SAGE III SCF in accordance with the ECS/SAGE III ICD and archive in the ECS.

4.2.11   Provide an interface for quality assessment in accordance with the ECS/SCF ICD.

4.2.12   Receive SAGE III special products and associated metadata from the SAGE III processing system and the ECS/SCF ICD and archive in the ECS.

4.2.13   Distribute SAGE III products from the ECS archive including standard products, ancillary input data, product version histories, delivered algorithm packages, special products and respective metadata and documentation to the EOSDIS user community and assist data recipients with information related to archive and distribution functions.

4.2.14   Provide distribution accounting reports to the SAGE III Project.

4.3 SAGE III Project

4.3.1   Produce SAGE III EOS Standard Data Products in accordance with MTPE approved Algorithm Theoretical Basis Documents (ATBDs) for science content and in accordance with EOSDIS data format standards for science data and metadata.

4.3.2   Define metadata contents in accordance with the ECS data model to be used by EOSDIS for describing and advertising SAGE III data products.

4.3.3   Support the ESDIS Project and the Langley DAAC in testing of the interface between the SAGE III SCF and the ECS.

4.3.4   Support the ESDIS Project and the Langley DAAC in testing of the interface between the SAGE III MOC and the ECS.

4.3.5   Provide SAGE III Level 0 data, definitive orbit data, Level 0 ancillary data and their respective metadata to the Langley DAAC in accordance with the ECS/SAGE III ICD for archive and backup in the ECS.

4.3.6   Receive data from the EOSDIS archive, including any data contained in the EOSDIS archive needed for SAGE III processing (for example, data received from the SAGE III MOC), using either standard ECS services (including search, order and subscription) or any extensions to ECS developed by the Langley DAAC.

4.3.7   Provide delivered algorithm packages, including SAGE III data processing source code, documentation of data processing methodology, test data, and description of data products to the Langley DAAC for archive in the ECS.

4.3.8   Provide SAGE III standard data products and associated metadata to the Langley DAAC and in accordance with the ECS/SAGE III ICD for archive in the ECS.

4.3.9   Provide ancillary input data and associated metadata used in production of SAGE III products that have a source other than the EOSDIS, to the Langley DAAC in accordance with the ECS/SAGE III ICD for archive in the ECS.

4.3.10   Provide processing histories associated with production of SAGE III products to the Langley DAAC in accordance with the ECS/SAGE III ICD for archive in the ECS.

4.3.11   Provide quality assessment for SAGE III Products to the Langley DAAC either applied prior to delivery of the SAGE III Standard products or through the quality assessment tools in accordance with the ECS/SCF ICD.

4.3.12   Provide SAGE III special products and associated metadata to the Langley DAAC and the ECS/SCF ICD for archive in the ECS.

4.3.13 Assist the Langley DAAC with information related to scientific content and format of SAGE III products.

4.3.14 Provide to the Langley DAAC availability schedules for SAGE III products.

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5. Documentation Responsibilities

This section describes the documents beyond this IPA to be developed and maintained either by the Langley DAAC or by the SAGE III Project that describe the IPA details.

The ECS/SCF ICD is a baselined document (GSFC 505-41-33) which is maintained by the ESDIS Configuration Control Board. The document describes the generic interface between ECS and all the EOS SCFs. The SAGE III SCF is one of these SCFs. Consultation with the SAGE III Project is necessary before acceptance of change requests for this document.

The ESC/SAGE III ICD is a baselined document (GSFC 505-41-47) which is maintained by the ESDIS CCB. The document describes the interface between ECS and the SAGE III MOC for delivery of Level 0, definitive orbit and ancillary data to ECS for backup and archive.

The document also describes the interface between ECS and the SAGE III SCF for delivery of SAGE III standard products and related data to ECS for archive. Concurrence of the SAGE III Project is necessary for acceptance of any change requests for this document.

5.1 ESDIS Project

5.1.1 Continue to lead the maintenance of the ECS/SCF ICD to specify methods of data transfer, data format, and data content.

5.1.2 Continue to lead the maintenance of the ECS/SAGE III ICD to specify methods of data transfer, data format, and data content.

5.2 Langley DAAC

5.2.1 Continue to support the ESDIS Project and the SAGE III Project in maintaining the ECS/SCF ICD.

5.2.2 Continue to support the ESDIS Project and the SAGE III Project in maintaining the ECS/SAGE III ICD.

5.2.3 Support the SAGE III Project in writing the Reference Documentation for the SAGE III Products including, a System/Architecture Design Document, a Data Products Catalog, a Processing Files Description Manual, and Data Set User's Guides.

5.2.4 Participate with the SAGE III Project in writing On-line Documentation and Data Interchange Formats (DIFs) for the SAGE III Products.

5.2.5 Write the Langley DAAC Data Management Plan for SAGE III data.

5.3 SAGE III Project

5.3.1 Continue to support the ESDIS Project and the Langley DAAC in maintaining the ECS/SCF ICD.

5.3.2 Continue to support the ESDIS Project and the Langley DAAC in maintaining the ECS/SAGE III ICD.

5.3.3 Write the Reference Documentation for the SAGE III Products including, a System/Architecture Design Document, a Data Products Catalog, a Processing Files Description Manual, and Data Set User's Guides.

5.3.4 Participate with the Langley DAAC in writing On-line Documentation and Data Interchange Formats (DIFs) for the SAGE III Products.

5.3.5 Support the Langley DAAC in preparation of the Langley DAAC Data Management Plan for SAGE III data.

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6. Scheduling Considerations

6.1.1   The SAGE III Project, the ESDIS Project and the Langley DAAC will mutually define the support milestones to be included in the SAGE III Project Milestone Schedule.

6.1.2   The Langley DAAC will provide reports of SAGE III related activities including archive and usage statistics for SAGE III Project reviews.

6.1.3   Schedule changes will be coordinated among the ESDIS Project, the SAGE III Project and the Langley DAAC in accordance with established ESDIS Project configuration management processes.

6.1.2   The respective responsibilities will be implemented, tested and operational before Meteor-3M launch (August 1998).

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7. Reporting and Review Requirements

The ESDIS Project, the SAGE III Project and the Langley DAAC will support each other's current reporting and management review practices.

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8. Funding Responsibility

ESDIS and the SAGE III Project will individually arrange for funding of their activities directly with MTPE (GSFC Code 170). No SAGE III resources will be used for development of the ECS capabilities nor for Langley DAAC operations activities, equipment or supplies. No Langley DAAC resources will be used for development of the SAGE III Project capabilities nor for SAGE III Project operations activities, equipment or supplies.

On September 24, 1997, the ESDIS configuration control board, with the concurrence of GSFC code 170, approved a change to the ECS contract to accomodate SAGE III data processing and archive as described in this inter-project agreement.

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9. Management

9.1.1   The Langley DAAC Manager and the SAGE III Associate Principal Investigator are responsible for coordinating the activities and responsibilities for their respective projects as listed in this IPA . This IPA will enter into force on the date the document is signed. This agreement may be modified only upon agreement of the SAGE III Project and the ESDIS Project. This IPA will remain in force until the Langley DAAC has received all SAGE III data to be archived and distributed.

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